UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,781	07/09/2003	Kenji Sawamura	2003_0942	8571

513 7590 03/29/2004

WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER	
FENTY, JESSE A	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/614,781	SAWAMURA, KENJI
	Examiner	Art Unit
	Jesse A. Fenty	2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/538,532.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-5, 8 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of Sawamura (U.S. Patent No. 6,495,855 B1). Although the conflicting claims are not identical, they are not patentably distinct from each other because all the limitations are claimed in the aggregate in the patent. Claim 1 of the patent does not expressly disclose "a distance between said active region and said dummy region being greater than 0.5μm and less than 10μm." However, claim 6 of the patent expresses such limitation and it would have been obvious for one skilled in the art at the time of the invention to use a limitation of one claim in that of another for the purpose of broadening the scope of the claimed subject matter.

3. Claims 6, 7 and 11-17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of Sawamura (U.S. Patent No. 6,495,855 B1) in view of Ukeda et al. (U.S. Patent No. 6,346,736 B1).

In re claims 6 and 7, Sawamura discloses the device of claim 2, but does not expressly disclose the trench material comprising an oxide, nor such material being abraded by the CMP method. Ukeda discloses a number of active and dummy device regions isolated by trench regions (8) filled with oxide and planarized by a CMP process. It would have been obvious for one skilled in the art at the time of the invention to use an oxide layer in a trench and to planarized such a trench by CMP for the purpose, for example, of enhancing device topography (Ukeda; column 1, lines 19-24).

In re claim 11, Sawamura in view of Ukeda discloses the device of claim 7, wherein said isolation region includes a trench filled with a high density plasma chemical vapor deposition layer (Sawamura, claim 7).

In re claim 12, Sawamura in view of Ukeda discloses the device of claim 11, wherein a depth of the trench is about 2500 to 5000 angstroms (Sawamura, claim 9).

In re claim 13, Sawamura in view of Ukeda discloses the device of claim 11, wherein the trench has a tapered shape (Sawamura, claim 10).

In re claim 14, Sawamura in view of Ukeda discloses the device of claim 11, wherein a taper angle of the trench is about 70 to 90 degrees (Sawamura, claim 11).

In re claim 15, Sawamura in view of Ukeda discloses the device of claim 11, wherein the trench insulating material is an oxide.

In re claim 16, Sawamura in view of Ukeda discloses the device of claim 15, wherein the oxide film is abraded by CMP.

In re claim 17, Sawamura in view of Ukeda discloses the device of claim 13, wherein a width of an opening of the trench is wider than a width of a bottom of the trench (Sawamura, claim 12).

4. Claim 9 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 8, 10, 11-14 and 17 of Sawamura (U.S. Patent No. 6,495,855 B1) in view of Boden, Jr. (U.S. Patent No. 6,452,230 B1).

In re claim 9, Sawamura discloses the device of claim 8, but does not expressly disclose the width of the opening of the trench to be in the range of 0.5μm to 1.0μm. Boden, Jr. discloses a semiconductor device with trench isolation regions of 1.0μm width and below (column 2, lines 46-48). It would have been obvious for one skilled in the art at the time of the invention to use thin trenches as disclosed by Boden, Jr. for the trenches of Sawamura for the purpose, for example, of reducing leakage current during device operation (Boden, Jr.; column 2, lines 45-46).

5. Claim 18 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 17 of Sawamura (U.S. Patent No. 6,495,855 B1) in view of Ukeda (as above) and further in view of Boden, Jr. (as above).

In re claim 18, Sawamura in view of Ukeda discloses the device of claim 17, but does not expressly disclose the width of the opening of the trench to be in the range of 0.5μm to 1.0μm.

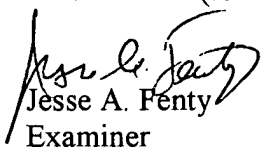
Boden, Jr. discloses a semiconductor device with trench isolation regions of 1.0μm width and below (column 2, lines 46-48). It would have been obvious for one skilled in the art at the time of the invention to use thin trenches as disclosed by Boden, Jr. for the trenches of Sawamura/Ukeda for the purpose, for example, of reducing leakage current during device operation (Boden, Jr.; column 2, lines 45-46).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on 5/4-9 1st Fri. Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jesse A. Fenty
Examiner
Art Unit 2815